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Frequency Function and Language Inequality and Its Enlightenment to Foreign Language Translation Teaching

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Abstract: Most college students are students with learning difficulties. Generally speaking, they are weak in foundation, poor in habits and slow in acceptance. They encounter many frustrations in foreign language translation and lack confidence and interest in foreign language translation. Practical foreign language translation teaching in "disaster-stricken areas". When designing teaching, teachers have to adjust the setting of teaching objectives, step by step, and even concede to the non-requirement of foreign language translation. However, such concessions will only make foreign language translation teaching in a more difficult situation. They will not achieve the teaching objectives set out in the syllabus of foreign language translation teaching, nor can they cultivate students' ability to continue learning, which is not conducive to the long-term development of students. Many students report that they have missed opportunities in continuing education, employment choices and job promotion after graduation because of their weak foreign languages. Language is not influenced by innate mechanism, but by continuous experience of language to achieve the effect of language acquisition. Therefore, the sensitivity to language environment and the summary of frequency knowledge have become the key to language acquisition. How does frequency function explain language acquisition and what is the shortage of frequency function? How does the importance of frequency function affect foreign language translation theory or foreign language learning? There is little discussion in China. Therefore, it is necessary to discuss this issue in detail by synthesizing various studies at home and abroad, in order to see its role in language acquisition theory and to examine its implications for foreign language translation teaching.

1. Introduction

Language acquisition has always been the focus of linguists' research. The source of language knowledge has always been the most controversial and difficult question to answer. Before

Chomsky put forward the idea of generating foreign language translation, there were two factions: mentalism and behaviorism. The main difference between them is whether linguistic knowledge is innate or determined by external environment. Since the 1950s, Chomsky's generation of foreign language translation has dominated for 30 years. He believes that language acquisition is determined by human's inherent language acquisition mechanism (Language Aquisition Device), and language acquisition is limited by critical period, and the focus of language is on the theory of innate talent. However, the innate hypothesis of this theory is difficult to prove, and some of its theories have been criticized by subsequent researchers. Later, many theories, such as psycholinguistics, cognitive linguistics and computer simulation science, focused on the use of language. Although experts have criticized Ellis' hypothesis that "frequency is the decisive factor in language acquisition", they have no objection to the hypothesis that "frequency can influence foreign language translation". Many linguistic theories recognize the important role of frequency in language acquisition, and explain the role of frequency from various perspectives.

The first is behaviorism. Behaviorism holds that the basis of behavior is the connection between stimulus and response, and finds the important role of frequency in the study of animals and infants. The researchers found that humans and animals respond to the same stimuli with the same stimuli, and this response is intensified or even automated as the frequency of stimuli increases. The rules of stimulation and response are also shown in the process of language learning and use. Taking vocabulary learning as an example, the higher the frequency of the occurrence and use of a vocabulary, the stronger the relationship between stimulus and response, which is more conducive to the memory of the vocabulary. Forster found that learners' judgment and extraction of high-frequency words were much faster than that of low-frequency words. Lado believes that the process of language learners' learning foreign language translation is actually a process of cultivating habits, and the foreign language translation system is actually a habitual system. Through repeated exposure to a language project, learners can strengthen the connections in their brains and further deepen their acquisition of the project. In short, language learning is also a process of stimulation and response. It is a process of learners' repeated contact with language, accumulation of experience and ultimately forming habits. However, behaviorism holds that any learning is an act, ignoring the complexity of human language learning.

Next is emergence theory. Emergence theory is a theory of language acquisition based on use. It holds that the innate mechanism of language acquisition in "language congenitalism" does not exist. Language development is based on experience, and rules of foreign language translation emerge gradually in the process of using language. From the perspective of emergence theory, language acquisition is a process in which human learning mechanism extracts pictures from language use and rules from language input. This process originates from the repeated interaction between language learners and language structures in language experience, and changes slightly with each contact. Language knowledge is generated and strengthened in the process of communication, just like children's acquisition of language, language units in communication after repeated treatment of language knowledge eventually emerge. Ellis also believes that language rules are based on the long-term analysis of the frequency distribution characteristics of language input. The emergence of language structures in use is based on the frequency characteristics of language input. In the process of language acquisition, the relationship between the language components that appear at the same time gradually strengthens with the increase of use, and language develops. It can be seen that frequency plays an important role in language acquisition. The higher the frequency of language use, the greater the accessibility of language representation.

By collecting a variety of theories and empirical studies on the role of frequency at home and

abroad, this paper classifies, collates and summarizes the literature by using the method of literature analysis, summarizes the current situation of the research on the role of frequency, and puts forward some suggestions for its application in foreign language translation teaching. This paper is mainly divided into three parts: first, a literature review of the role of frequency, that is, its theoretical development, the content of the role of frequency, and so on; second, an empirical study of the frequency of input and output at home and abroad; third, combining with the content and shortcomings of frequency function, this paper puts forward its enlightenment to foreign language translation teaching, such as how to optimize input and output, the common influence of frequency function and other factors, and affirms the important role of recitation as a form of combination of input and output. Through a systematic analysis and discussion of these contents, this paper points out how to use frequency to achieve the best learning effect in foreign language translation teaching, enriches the content of foreign language translation teaching, and explores the development direction of foreign language translation teaching.

2. Literature Review

2.1. Frequency Theory

In linguistics, frequency refers not only to the number of occurrences of language items in paragraphs and language materials, that is, the distribution of linguistic features, but also to the individual's experience of touching language, that is, the study of frequency effect in practice frequency, as we call it, has a long history. In the period of behaviorism, frequency was regarded as one of the core concepts of stimulus-response theory. In language teaching, the wide application of listening and speaking method also proves the recognition of frequency effect in linguistic circles. Later, behaviorism declined and the "language congenitalism" rose, and the frequency effect was gradually forgotten. However, around 2000, the research results of many emerging disciplines (such as cognitive science, psycholinguistics, discourse analysis, corpus linguistics) completely overturned the "congenitalism" and supported the view that "learning language is the same as learning other cognitive skills". Again, frequency is an indelible factor for language learning. The annual special issue entitled "Frequency Function in Language Processing" focuses on the role of frequency and its implications for foreign language translation theory from various perspectives. Ellis put forward the frequency-centered theory, which contains three hypotheses: (1) language learning is the most basic case study; (2) learning foreign language translation is the mastery of structure; (3) frequency is the key to language acquisition. British linguist Leech (2011) pointed out that frequency information should be the guidance of learners' language input, learners' assessment and learners' language use. Harrington & Dennis believes that language learning can establish the relationship between linguistic representations, and the frequency of practice plays an important role in strengthening the relationship. Cognitive recognition of the role of frequency can be seen from Newell & Rosenbloom's law of practice. According to the law of practice, repetitive practice is the only way for human beings to learn and improve all skills, and the time needed to complete tasks and practice almost develops in a straight line. Shiffring & Schneider's theory of language automation divides human's processing of information into controlled processing and automatic processing. Controlled processing usually occurs in the process of new task execution, which requires attention; while automatic processing generally occurs in skilled skills, which does not require too much attention. The transition from controlled processing to automatic processing depends on repetitive practice. With the increase of practice frequency, attention can be shifted to the required plate, and attention resources can be better allocated to achieve learning in the best

state. In language learning, due to the limitation of attention resources, people usually pay attention to the content first, not as a form of language learning goals, which greatly affects the learning effect.

2.2. Input Frequency

From the perspective of aural input, Lee, J. (2016) examined the frequency effect of auditory input by asking subjects to listen to the lecture repeatedly. They found that the main information points of the lecture did not change much after repeated input, while the sub-key information increased when re-input. Marian, V. (2017) randomly divided the subjects into four groups, receiving different input and output frequencies. The experiment was divided into four groups. Through the analysis of the results, she also believed that the input frequency had a significant impact on the content of story retelling, and the fluency and complexity of story retelling were improved accordingly. She also came to the conclusion that input frequency had little effect on the accuracy of output, but this could not be used as a small proof of the effect of input frequency on language accuracy, because the frequency was controlled within four times in this experiment, which may not be enough to cause significant changes in accuracy. However, both of these studies show that the increase of input increases the information points that learners pay attention to and makes learning more comprehensive. Swerts, M. (2016) by comparing the results of pre-test and post-test after repeated listening test, it is concluded that repetition of listening input plays an important role in three important factors, namely, pronunciation, comprehension and correctness of foreign language translation. Therefore, not only in terms of content, but also because of the particularity of auditory input, its speech recognition can not be ignored. However, in Chen Hua, Fagan, W. F. (2015)' experiment, they examined the effect of auditory input on prosodic features of foreign languages. In the experiment, the subjects were divided into four groups and received different input and output frequencies, which were inversely proportional. The results showed that input frequencies played a significant role in prosodic structure acquisition, but output was not. There was no significant difference in stress and tone between the two groups. That is to say, in second language learning, input frequency plays a significant role in some easily recognizable speech features, but it can not help in some difficult speech problems. From these, we can see that auditory input has a frequency effect on speech, language content and foreign language translation, but it has no significant effect on some imperceptible linguistic features. The influencing factors may be related to insufficient frequency or other factors in language acquisition, such as attention, which will be mentioned in the following contents. Visual input is mainly carried out by reading. Many incidental vocabulary acquisition studies involve the relationship between input times and vocabulary acquisition.

2.3. Output Frequency

The output frequency is also reflected in oral output and written output. On the level of oral expression, output frequency is mainly reflected in the role of language fluency, accuracy and complexity (W. L. (2015)). Bygate (1996) asked a participant to retell a story twice. The experiment proved that the repetition of output was helpful to improve the fluency, accuracy and complexity of language. Abbes, S. (2013) expanded the study to 32 participants. Similarly, a three-week post-test was added to the story retelling method, and significant improvements were also found in the indicators. Peters, E. (2013), Paquot, M. (2016) used 4/3/2 practice to test the fluency of oral production. The specific steps were: let the subjects retell one thing three times, four minutes for the

first time, three minutes for the second time and two minutes for the fourth time. The results showed that the subjects' oral fluency improved significantly. Petocz, P. (2017) also applied the 4/3/2 practice method to Chinese foreign language translators. The experimental results also showed that the fluency of oral English was greatly improved. She also compared the output of 4 minutes with that of 3 minutes, 3 minutes with 2 minutes, 4 minutes with 2 minutes. The comparison between 4 minutes and 2 minutes was significant. Therefore, she believes that the more opportunities for repetition, the higher fluency and accuracy. Sahan. (2016) also compared the input and output frequencies, and gave a general description of the different roles of the two: the experiment was divided into four groups, one, two, three and four groups of listening materials were 1, 2, 3, 4 times, one group of students repeated four times, the other repeated once. Through the analysis of the results, she believes that although the input frequency can affect the output content, the output frequency does not promote the content, but in terms of accuracy, the effect is remarkable. The effect of input on fluency is slow and steady, but the effect of secondary output on fluency is significant. In terms of complexity, they are just the opposite. The effect of secondary input is remarkable, and the effect of output frequency on complexity is stable. Xu, Q. (2016) also examined the effect of input and output frequencies on speech [v] [w] error correction. He believed that both input and output have a positive effect on error correction. Although input plays a greater role than output, he also said that the effect of speech error correction is different in different situations. If we need to master the language freely and correctly, we need a lot of training in different contexts. These studies all show that output plays a great role in the progress of language content and form. Fluency and accuracy play a more significant role than complexity. Retelling the same task and different tasks also have different roles.

Therefore, corpus's description of this general trend has a guiding role in controlling individual language input and arranging teaching plans.

2.4. The Interaction between Frequency and the Characteristics of Foreign Language Translation

Cao, L. (2016) analyzed that after reading a masterpiece, German learners whose mother tongue was a foreign language acquired about 75% of the German proverbs. The number of proverbs in the book was related to their acquisition. However, the experimental results also found that the effect of repetition was obviously irregular. 70% of the subjects learned a word that appeared only once, only 15% of the subjects learned a word that appeared nine times, and only 40% of the subjects learned a word that appeared 42 times, but the frequency was about 10 times, and the acquisition situation was relatively consistent. Chase, P. B. (2014) found that although - s morphemes appeared frequently, they were backward in acquisition order. These are the manifestations of the deviation of frequency function from the ideal trajectory of development, which means that frequency can not be used as the only variable to guide the acquisition of foreign language translation. Cole, & Andrew, D. (2016) analyzed that although -s appeared frequently, it was slow to learn because of its low saliency (Gholami, J. (2014). Because many tortuous morphemes that mark tenses can be expressed by adverbs, the prominence of tortuous morphemes is even lower because of the prominence of adverbs. He believes that saliency is embodied in form, meaning and use: the more a foreign language translation form appears, the more salient it will be; meaning can become more salient because of the opposite meaning; learners discover the violation of rules in their foreign language translation, the more salient the pragmatics of foreign language translation projects. Rescorla-Wagner model (Chan, K. P. A. (2014)) also believes that the saliency of clues is an

important factor in the associative learning of clues-results in foreign language translation. Many foreign language translation structures, due to the lack of prominence of form-function matching, become difficulties in foreign language translation learning, such as translation articles, tortuous morphology, etc. Adverbs such as "yesterday" and "tomorrow" as a more prominent form will cover up the morphemes of translation, thus making it more difficult to acquire such structures (Grainger, J. (2014)). Martin, K. E. (2014) found that the order of acquisition of Wh-questions was related to the input frequency, not to the syntactic and semantic difficulty, but the interaction between difficulty and frequency effect could explain why the frequency of interrogative sentences was higher, but the acquisition was later. These studies illustrate the fact that frequency is not completely related to acquisition order, and influenced by the saliency and difficulty of foreign language translation materials, the less salient and the more difficult it is, the more difficult it is to acquire foreign language translation items, thus requiring more repetition. However, when answering the first question, it should also be noted that one-time input may enable learners to successfully memorize a foreign language translation project. However, Julieta. (2015) also clearly points out that the memory of target words is mostly vague or partial, and word frequency has a significant "threshold" effect on Incidental Vocabulary acquisition. Although some foreign language translation structures can be roughly acquired by one input, they must be presented many times before they can truly grasp their meaning system, so that fast and tentative assumptions can be transformed into more complete and abundant meaningful representations (Sanz, C.. (2014)).

3. Research Method

3.1. Research Object

A total of 200 subjects were studied in this paper. The proportion of men and women in this class is equal, and the foreign language translation achievement is medium in all majors. Researchers first divide students into high, middle and low groups according to their scores. Then they divide each group into two groups: high A, high B, medium A, medium B, low A and low B. Finally, high A, medium A and low A form group A. High B, medium B and low B form group B. The two groups will complete different learning tasks according to the requirements of the researchers.

3.2. Research Tools

This paper will use literature analysis method to collect various theoretical and practical research on the role of frequency at home and abroad through books, periodicals, academic papers and other ways, and the process of material collection is as comprehensive and meticulous as possible. Through the comprehensive collation and analysis of the collected materials, the core of the research is sorted out, the current situation and prospects of the research content are summarized, and the best effect of how to play the role of frequency is demonstrated from the existing evidence, and the author puts forward his own opinions on how to develop teaching and learning around the role of frequency.

4. Analysis Result

4.1. The Relation between Frequency Type and Frequency Effect

On the premise that the overall level of foreign language translation and the mastery of foreign

language translation are basically the same among the three groups of students, the researcher used the time of Monday and Wednesday afternoon self-study to ask the students of Group A and Group B to do different exercises respectively. The exercises lasted for the same length, and the activity location was in the computer classroom of the class. Researchers divided the experiment into three small experiments and implemented them in stages. Each exercise lasts 45 minutes. Each stage lasts four weeks.

Table 1. Arrangement of experimental exercises in Group A and Group B

	A	B
Experiment 1	Sentence translation	Word translation
Experiment 2	Paradigms translation	Long sentences translation
Experiment 3	Sentences, Paradigms, Literary Translation	Translation of words, long sentences and poems

The differences between dominant frequency and recessive frequency in foreign language translation learning are examined by experiments. The dominant frequency was group A's translation exercises and the recessive frequency was group B's reading comprehension exercises.

Table 2. Description of the results of the post-translation test and the pre-translation test of two groups of students

		Mean value	N	Standard deviation	Standard deviation of mean
A	Pre-translation	18.41	19	5.71	1.23
	Post-translation	19.51	19	5.67	1.14
B	Pre-translation	18.14	19	5.75	1.51
	Post-translation	17.89	19	5.73	1.42

Selected translation topics for group A students. There was no significant change in group B. The results show that when the frequency is 3, the increase of dominant frequency can effectively promote students to master explicit knowledge of foreign language translation, and the effect is remarkable, while the increase of implicit frequency has no significant effect on the improvement of students' explicit knowledge. The increase of dominant frequency can effectively promote students to master explicit knowledge of foreign language translation. The increase of implicit frequency can effectively promote students to master the implicit knowledge of foreign language translation, and the effect is remarkable. The increase of implicit frequency has a positive effect on students' increasing use of foreign language translation in written expression, but the effect is not significant enough.

4.2. The Effectiveness of Recitation and Rereading

Choosing good recitation materials is also a shortcut to improve learning. Good recitation

materials usually include some classical sentences, paragraphs, articles and works of famous writers. As an effective way to provide input, it can enable learners to access correct translation, word formation and beautiful, logical text, and improve their language situation from the authentic language input. From the learning experience of many celebrities learning foreign languages, recitation is an indispensable learning method. Marx, Engels, Lenin, Leo Tolstoy, Ji Xianlin and so on are diligent in reciting. Therefore, they can achieve good learning results by constantly practicing repeated input and output of natural language. Recitation is very similar to the repetition method mentioned in this paper in the input frequency. If listening materials can be assisted in recitation, better results will be achieved.

4.3. Optimizing Translation from the Perspective of Corpus Linguistics

Corpus linguistics is a frequency-based study. The main functions of corpus are as follows: 1. frequencylist, which reflects the number of occurrences of a morpheme, vocabulary or translation structure in one or part of the corpus. 2. concordance, that is, a morpheme appears in a word and a word appears in the frequency index of a translation structure. 3. Collocation, that is, the frequency of collocation of various linguistic components. For foreign language learning, corpus can be used to judge the vocabulary level of second language learners and the knowledge that should be paid attention to in teaching and learning. Leech (2011) also proposed three categories of frequencies: raw frequency, normalized frequency and ordinal frequency. The original frequency refers to the frequency of the occurrence of a linguistic phenomenon X in a corpus, text or text set. Standard frequencies, also known as relative frequencies, are calculated by a standard measurement rule, such as the occurrence rate of tokens per million words. Sequential frequency refers to the frequency of X, which is compared with the frequency of Y, Z and so on, and then forms a list of high and low frequencies. Leech thought that although the standard frequency and the order frequency are based on the original frequency, the original frequency itself has no significance. Standard frequencies can compare the frequency differences in different corpus and texts. And the most important thing is the order frequency. If you tell a learner that shall appears 175 times per million words, it's far less useful to tell him that will appears 15 times as often as shall.

5. Discussion

At the end of the last exercise of each experiment, the post-test was conducted, and the test content and scoring method were the same as the pre-test. All the test papers are distributed and retrieved and analyzed through Superstar Panya Network Teaching Platform. After the test, the data were collected and the average scores and standard deviations of the two groups were calculated by statistical software. The first experiment aims to study the effects of explicit and implicit frequency changes on students' translation monographs, reading comprehension and written expression. The second experiment aims to study the effects of input and output frequency changes on the above three aspects. In experiment 3, on the one hand, we studied the effect of frequency effect on the improvement of students' explicit knowledge, tacit knowledge learning and application ability in foreign language translation with experiment 1 and experiment 2. On the other hand, we explored whether frequency effect could be better brought into play by diversified tasks compared with single task and active learning tasks compared with passive learning tasks. Therefore, based on the experimental results, this paper explores how to design learning tasks and make better use of the frequency effect to improve students' foreign language translation learning. Using the 7-point system, native speakers can judge the similarity between non-words and their mother tongue. The

probability of these non-words is determined by the possibility that their first and last parts are in accordance with the phonemic arrangement. Studies have proved that native speakers can generally judge non-words accurately, but it is difficult for them to explain their answers with phonology. The knowledge of phoneme arrangement is a generalization of the repeated connection sequences in speech materials, which reflects the sensitivity of human beings to input frequencies, and can induce language rules guided by frequencies from many parallel language materials. The results show that children can discover the distribution characteristics of speech input from 11 months of age. Speech frequency is the earliest form to promote language acquisition. Adults are more proficient in this arrangement rule. They are able to decompose and recognize continuous language from the very beginning of their childhood, and the most important thing is to analyze the distribution characteristics of vowels, consonants, phonemes and phonetic rules in their mother tongue.

6. Conclusion

The theoretical basis of frequency function comes from various use-based theories. From the first theoretical review of frequency function, this paper questioned Chomsky's innate mechanism of language. The source of language knowledge must be based on repeated experience. Language acquisition is based on examples and is a process of abstracting frequency-oriented language rules from thousands of language structures. Therefore, frequency is an important factor in language acquisition, which is reflected not only in mother tongue acquisition, but also in foreign language translation. Next, in order to clarify the role of frequency, this paper explores the influence of frequency on language acquisition from the perspectives of phonetics, vocabulary spelling, word frequency, morphology, syntax and programming. It covers all linguistic knowledge. It can not only enhance the recognition speed of language items by repetition, but also combine the linguistic structures in which repetitions occur together by means of "chunks", thus making the language develop from low-level forms to high-level ones. In addition, the type character frequency and the class character frequency of language play different roles in language acquisition. The former promotes the solidification of language knowledge, while the latter makes the language learners more creative in the use of language.

7. Suggestion

Most of the contents of this paper discuss the advantages and contents of frequency effect, but there are also the following shortcomings.

(1) The current research on the role of frequency is embodied in the fields of mother tongue acquisition and foreign language translation, which can not be ignored. However, few studies have discussed the frequency role of mother tongue and second language within a framework. In addition to the similarities between them, the differences between them should be described in order to examine the differences between them. Through the understanding of these differences, we can have some enlightenment on foreign language translation theory.

(2) It has been pointed out that frequency is not the only variable affecting language acquisition. It is influenced by many factors. Previous studies have been limited to frequency as a single variable to examine the role of frequency. Therefore, more emphasis should be placed on frequency and other variables affecting language acquisition in the same experiment. For example, the characteristics of language itself, mother tongue transfer and other factors should be included in the same experiment, so that we can more clearly see the true face of the role of frequency.

(3) The frequency is also a noteworthy problem. In this paper, many studies on frequency have been mentioned. Different frequency times play different roles. However, how to grasp the best point of frequency, how many repetitions are needed for a language project to be acquired in order to be truly mastered. Scholars have different opinions, ranging from 6 to 20 or more than 20 times. This paper holds that we should develop a more unified understanding of this issue, which is also a direction of future research.

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Conflict of Interest

The author states that this article has no conflict of interest.

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